Check Your Hard Drive

Keep Your Hard Drive Healthy With Free Diagnostic Utilities

Your hard drive is perhaps the hardest-working part of your computer. Aside from the fans, it's the only component with moving parts. The heads zip back and forth like a 747 doing Mach 1 only inches from the ground as, just a fraction of an inch below, its platters spin at 5,400, 7,200, or 10,000rpm.

So if your hard drive starts making grinding noises or otherwise seems to be acting peculiar, it's something to take seriously. After all, that delicate, hard-working drive is the repository for all of the information stored on your computer.

You can diagnose your hard drive's health yourself. It doesn't take an expensive trip to the repair shop or buying new software; the manufacturer provides free software for testing and diagnosing the drive.

See Dr. Disk Drive

If you suspect that your hard drive may have a problem or if you simply want to make sure it is working properly, you'll need to download and install drive diagnostic software.

Each major drive manufacturer distributes its own diagnostic software. It's best to use the software from the maker of your particular drive—different companies may use different diagnostic codes, so you'll get the most accurate information with the utility meant for your drive. Also, if there is a problem, chances are the technical support personnel will want the problem verified by their company's own utility. However, some of these programs (such as SeaTools Online) say they will work with any drive, so if your hard drive's manufacturer has gone out of business or you want a second opinion, go ahead and use one of the other utilities.

Your first step is finding out which company manufactured the drive in your computer. There is only a handful of hard drive manufacturers. If you bought a computer from Dell or Gateway, for instance, those companies use drives built by Western Digital, Hitachi, Maxtor, or another manufacturer.

With a desktop PC, the easiest way to find out the drive's manufacturer is to open the computer and look at it. To do

Manufacturer	Test Name	URL
Fujitsu	Fujitsu Diagnostic Tool	www.fcpa.fujitsu.com/support/hard-drives/software_utilities.html
Hitachi	Drive Fitness Test	www.hitachigst.com/hdd/technolo/dft/dft.htm
IBM (later installation)	Drive Fitness Test	www.hitachigst.com/hdd/technolo/dft/dft.htm
IBM (pre-installed)	PC Doctor	www.pc.ibm.com/ww/hdd/hddredirect.html
Maxtor	PowerMax	www.maxtor.com
Quantum	PowerMax	www.maxtor.com
Western Digital	Data Lifeguard	support.wdc.com/download

First Things First

If your hard drive starts to make a strange sound—perhaps a grinding or occasional klunk noise—or acts peculiar, take action immediately. If you even suspect that something might be wrong with a drive, your first priority should be to back up the essential data on that drive. That doesn't mean backing up every single file. Instead, back up the files you have created, such as word processor documents, email, and digital photos. Once your vital documents are safe on CD-R/RW, floppy, or other media, turn to the task of testing the drive.

A noisy drive does not necessarily mean that it is a ticking time bomb. Some drives simply become noisier over time but continue to work perfectly for years to come. ▮

this, turn off the computer and unplug it from the electrical outlet. Remove the side panel and locate the hard drive. The manufacturer and model number will be shown on the top of the drive. There is no need to disconnect the drive's cables, but you may need to unscrew the drive from its mounting brackets and then slide the drive to a position where you can see the information. Write down the manufacturer and model number and then replace the drive and the PC's side panel.

Next, you'll need to download the appropriate diagnostic software. The following chart includes common hard drive diagnostic utilities and URLs at which you can download them.

Modern hard drives include a self-diagnostic technology called SMART (Self-Monitoring Analysis and Reporting Technology). When the drive detects a problem during normal usage (for instance, the temperature is too hot or the drive takes too long to spin up), it logs the problem. The diagnostic utility retrieves this diagnostic information and tells you if there are problems or performance trends to worry about.

No matter which program you use, read the on-screen instructions carefully. Some of the utilities include functions that could irrevocably erase all of the information on the drive. In particular, look out for formatting commands and "destructive" tests. The utilities warn you before doing anything potentially harmful, but still—be careful.

Most hard drives have a label that clearly shows the manufacturer and model number.

Seagate

Seagate offers two versions of its drive diagnostic tools, both available from www.seagate.com/support/seatools/. If you're using Windows 98/Me/2000/XP, running Internet Explorer or Netscape, SeaTools Online will check your ATA, SATA, or SCSI hard drives without even rebooting the system. Assuming the drive is installed in a working Windows PC, this is the easier method.

To begin with SeaTools Online, click English (or your preferred language) on the SeaTools Online section of the Web page. Next, click Drive Self Test. After downloading some software components, you'll see a list of drives connected to the PC. Select the one you want to test and click Next.

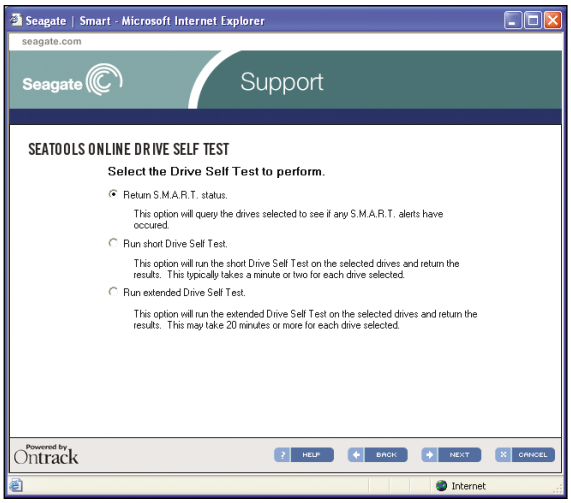
You'll see a list of tests. Return SMART Status will check the drive's self-diagnostic logs to find out if it is functioning properly. This takes only a moment; if the results screen says "No SMART thresholds exceeded," the drive is OK. Running Short Drive Self Test puts the drive though a few functionality tests that only take about a minute to perform. The Extended Drive Self Test is a more thorough version of the short test that can take 10 to 20 minutes to complete. There are other tests, too, including one that scans every sector of the drive and another that spins down the drive so you can hear how much noise it generates.

The other option, SeaTools Desktop, is a standalone program that offers a similar battery of tests. It takes more effort to get working: You must either download a floppy disk creator or CD-ROM image and then use it to create a floppy disk or CD-ROM to boot from. According to Seagate this is the more popular version; the benefit is that it doesn't depend on the installation or functionality of any particular operating system on your PC.

To create a SeaTools Desktop diagnostic floppy, download and then run the Floppy Disk Creator. When prompted, insert a formatted floppy disk in drive A:. The program will create a bootable floppy disk. When you restart the PC, it will run the program. Or, you can download the CD-ROM in .ISO format and then use your favorite CD burning application to create a bootable diagnostic CD-R. You may have to use your PC's CMOS (complementary metal-oxide semiconductor) setup utility to tell it to boot from CD-ROM or floppy instead of the hard drive.

Western Digital

If you have a Western Digital drive, point your Web browser to


Seagate | Smart - Microsoft Internet Explorer
seagate.com
Seagate
Support
SEATOOLS ONLINE DRIVE SELF TEST
Select the Drive Self Test to perform.
Return S.M.A.R.T. status.
This option will query the drives selected to see if any S.M.A.R.T. alerts have occured.
Run short Drive Self Test.
This option will run the short Drive Self Test on the selected drives and return the results. This typically takes a minute or two for each drive selected.
Run extended Drive Self Test.
This option will run the extended Drive Self Test on the selected drives and return the results. This may take 20 minutes or more for each drive selected.
Powered by Ontrack
HELP
BACK
NEXT
CANCEL
Internet

SeaTools Online makes it easy to run several diagnostic tests on your hard drive, assuming your PC can boot Windows.

support.wdc.com. There are two ways to test your drive: the Online Diagnostic and the downloadable Data Lifeguard Tools.

As with Seagate's tests, the "online" version is available if you are running Win9x/Me/NT/2000/XP plus Internet Explorer or Netscape, with no need to reboot the PC. The Online Diagnostic (available from support.wdc.com/dlg/onlinedlg.asp) is the simpler method for basic testing. First, you'll have to register and then download and run a small program. The program tests the drive in two ways: First, it asks the drive's SMART diagnostic routines if everything is working properly and then it performs a functionality test of the drive. If everything is OK, it gives the thumbs up.

For more thorough testing, you can use the Data Lifeguard Tools (available from support.wdc.com/download). This is a standalone program that is available for Windows and DOS. PCs running Windows should download the Windows version, but if the PC in question is running Linux or—due to hard drive trouble—isn't booting at all, download the DOS version. In this case, you will be able to download an installer that will create a bootable diagnostic floppy.

Maxtor & Quantum

For Maxtor and Quantum brand drives, the tool to use is PowerMax. The software isn't available online; instead, you must download and run a program that creates a bootable floppy disk and then boot that disk to diagnose the hard drive.

To download the program, go to www.maxtor.com, click Worldwide Support, choose your region and language, and then click Software Downloads. Select the diagnostic software for your drive. Once the file is downloaded, make sure you have a formatted floppy on hand. Run the program, which will create a PowerMax boot disk. When it is done, reboot the computer with the disk still inserted. The PowerMax drive diagnostic utility will start.

You'll have the option of several diagnostic tests. Start with the Basic Quick Test, which will run the drive though basic workings and query its SMART status. The Advanced Test and Burn In Test can do a more thorough analysis, if necessary.

Bad News—Now What?

If the diagnostic utility reports that something is wrong with the drive, print out the report if possible. Back up everything of importance if you haven't done so already. Next, check the warranty. If the drive is still under warranty, you should be able to send it back for replacement.

If the drive was preinstalled in the computer when you bought it, the warranty will be covered by the computer manufacturer. Check your warranty information or the PC manufacturer's Web site to find out if the drive is still covered.

But if you purchased the drive separately from the computer and installed it yourself, look to the drive manufacturer for warranty support. Most drives sold directly to customers have only one year of coverage, but some models have three-year warranties. If you can't find the sales receipt or warranty information, visit the support area of the manufacturer's Web site. When you enter your serial number, these sites will tell you if your drive is still under warranty.

If the drive is no longer under warranty, it's time to go shopping for a new drive. You can probably get a new drive that's much bigger than the old one; spacious hard drives, with 100GB or more, are available for $50 to $100. Check the Storage section at www.dealnews.com to find great deals on hard drives.

Hopefully, the news won't be bad at all; the diagnostic utility might tell you that the drive is A-OK. In that case, you can relax knowing that the hardest working part of your computer continues to toil away at 5,400, 7,200, or 10,000rpm. PCT

by Kevin Savetz

Diagnostic Floppy Disks

Several drive diagnostic utilities must run from a floppy disk. They provide a special application that creates a boot floppy, requiring that you restart the computer and boot to that floppy to run the program. The advantage is that the computer with the questionable hard drive doesn't need to run Windows or to be able to boot at all.

If the computer can't boot or doesn't run Windows, use a different PC to create the boot floppy, then move the disk to the problem PC. Some PCs don't have a floppy drive—what then? In that case, you'll temporarily connect the hard drive that requires diagnostics to a PC with a floppy drive.

You may also find that your USB (Universal Serial Bus) keyboard and mouse won't work when you're using these floppy-based utilities. In this case, you'll have to attach a PS/2 keyboard and mouse to run the diagnostics. ▮